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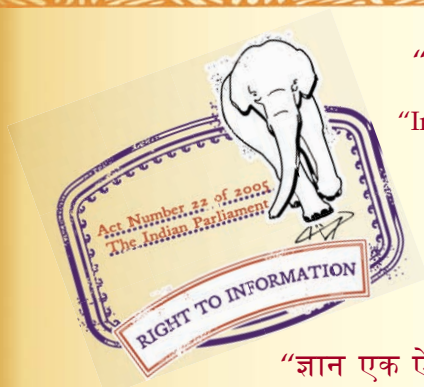
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IS 9943 (1981): Characteristic Impedances and Dimensions of Radio-frequency Coaxial Cables [LITD 6: Wires, Cables, Waveguides and Accessories]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 9943 - 1981

(Reaffirmed 2002)

Indian Standard

REAFFIRMED

**CHARACTERISTIC IMPEDANCES AND
DIMENSIONS OF RADIO-FREQUENCY
COAXIAL CABLES**

UDC 621.315.212.029.5 : 621.3.011.21 : 006.78



82.02.24

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 5.00

December 1981

Indian Standard

CHARACTERISTIC IMPEDANCES AND DIMENSIONS OF RADIO-FREQUENCY COAXIAL CABLES

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(Continued on page 2)

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IS : 9943 - 1981

(Continued from page 1)

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Indian Standard

CHARACTERISTIC IMPEDANCES AND DIMENSIONS OF RADIO-FREQUENCY COAXIAL CABLES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 11 September 1981, after the draft finalized by the Wires and Cables for Electronic Equipment Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

0.2 This standard lays down a set of values of characteristic impedances and the associated dimensions, namely, diameter over dielectric (*dod*) for radio-frequency coaxial cables. This standard forms a basis for the selection of characteristic impedances and the *dod* values while preparing detail specifications for radio-frequency coaxial cables.

0.3 In the preparation of this standard, considerable assistance has been derived from IEC Pub 78(1967) 'Characteristic Impedances and Dimensions of Radio-frequency Coaxial Cables', issued by the International Electrotechnical Commission (IEC).

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies *preferred* values for characteristic impedances and associated dimensions over the dielectric for radio-frequency coaxial cables.

2. CHARACTERISTIC IMPEDANCES

2.0 General — All impedances in this clause are defined at a frequency of 200 MHz and at the reference temperature of 20°C.

*Rules for rounding off numerical values (*revised*).

2.1 Coaxial Cables — *Preferred* values of characteristic impedances are:

50 ohms

75 ohms

95 ohms

2.2 Twin Conductor Cables — *Preferred* value of characteristic impedance for unscreened type cables is 300 ohms.

2.3 Dual Coaxial Cables — For dual coaxial type cables no values of characteristic impedances are specified. It is recommended that the construction of these cables shall be based on the standard coaxial cables given in 3.

3. DIAMETERS OVER DIELECTRIC AND CHARACTERISTIC IMPEDANCES FOR COAXIAL CABLES

3.1 Standard rated diameters over dielectric, the *preferred* values of characteristic impedances for coaxial cables and the tolerances thereon shall be in accordance with Table 1.

4. DIMENSIONS AND CHARACTERISTIC IMPEDANCE FOR FLEXIBLE TWIN CABLES

4.1 Characteristic impedance for flexible twin cables and the tolerances thereon shall be in accordance with Table 2.

TABLE 1 DIAMETER OVER DIELECTRIC AND CHARACTERISTIC IMPEDANCE OF COAXIAL CABLES

(Clause 3.1)

DIELECTRIC	IMPEDANCE (ohms)		DIAMETER OVER DIELECTRIC (mm)	
	Preferred Value	Tolerance ±	Rated Value	Tolerance ±
(1)	(2)	(3)	(4)	(5)
Solid Polyethylene	50	2.0	0.87	0.07
		2.0	1.52	0.10
		2.0	2.95	0.13
		2.0	7.24	0.25
		1.0*	7.24	0.15
		2.0	11.51	0.30
		2.0	17.27	0.40
	75	3.0	3.71	0.13
		1.5*	3.71	0.10
		3.0	7.24	0.25
		1.5*	7.24	0.15
Cellular Polyethylene	75	3.0	17.27	0.40
			3.71	0.33
			4.80	0.18
			7.24	0.25
	50	2.0	0.86	0.07
		2.0	1.52	0.10
		2.0	2.95	0.13
		2.0	7.24	0.15
		2.0	11.51	0.30
		2.0	15.75	0.35
Polytetrafluoroethylene	75	3.5	1.52	0.10
		3.0	3.71	0.13
		3.0	7.24	0.25
	95	5.0	2.59	0.13

NOTE 1 — The standardized characteristic impedances are based upon the value of Z_m determined from measurement of velocity ratio and capacitance on any suitable length of cable.

NOTE 2 — The specified tolerances do not take into account experimental errors in measurement.

*Close tolerance cables.

**TABLE 2 DIMENSIONS AND CHARACTERISTIC IMPEDANCE
OF FLEXIBLE TWIN CABLES**

DIELECTRIC	IMPEDANCE (ohms)		DIMENSIONS
	Rated value	Tolerance	
(1)	(2)	(3)	(4)
Solid Polyethylene	300	± 30	See relevant cable standard